Type 3251 Valve

In combination with an actuator,
e.g. a SAMSON Type 3271 or Type 3277 Pneumatic Actuator

DIN version

Translation of original instructions

Type 3251 Valve with Type 3271 Actuator

Mounting and Operating Instructions

EB 8051 EN

Edition June 2015

Referenced documentation

The following documents apply in addition to these mounting and operating instructions:

- Mounting and operating instructions for mounted actuator, e.g. ▶ EB 8310-X for SAMSON Type 3271 and Type 3277 Actuators
- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- ▶ WA 0029 for tools and lubricant

The mounting and operating instructions for all supplied devices are included in the delivery. The latest versions of the documents are available on our website at ▶ www.samson.de > Product documentation.

Definition of signal words

DANGER!
Hazardous situations which, if not avoided, will result in death or serious injury

WARNING!
Hazardous situations which, if not avoided, could result in death or serious injury

NOTICE
Property damage message or malfunction

Note:
Additional information

Tip:
Recommended action

1 Safety instructions and safety measures 5
1.1 Notes on possible severe personal injury 7
1.2 Notes on possible personal injury 8
1.3 Notes on possible property damage 9
2 Markings on the control valve 10
2.1 Valve nameplate 10
2.2 Actuator nameplate 11
2.3 Material number 11
3 Design and principle of operation 12
3.1 Fail-safe positions 12
3.2 Versions 14
3.3 Technical data 14
4 Preparation 20
4.1 Unpacking 20
4.2 Transporting and lifting 20
4.2.1 Transporting 21
4.2.2 Lifting 21
4.3 Storage 24
4.4 Preparation for installation 25
5 Mounting and start-up 26
5.1 Mounting the actuator onto the valve 26
5.2 Installing the valve into the pipeline 27
5.2.1 Checking the installation conditions 27
5.2.2 Additional fittings 28
5.2.3 Installing the control valve 29
5.2.4 Quick check 29
6 Operation 31
6.1 Working in manual mode 31
7 Maintenance 32
7.1 Replacing the packing 33
7.1.1 Standard valve versions 33
7.1.2 Valves with insulating section or bellows seal 34

7.2 Replacing the seat 34
7.2.1 Standard valve versions 34
7.2.2 Valves with insulating section or bellows seal 34
7.3 Replacing the plug 34
7.3.1 Standard valve versions 36
7.3.2 Valves with insulating section or bellows seal 36
7.4 Replacing the metal bellows (valves with bellows seal only) 36
7.5 Preparation for return shipment 36
7.6 Ordering spare parts and operating supplies 37
8 Malfunctions 38
8.1 Troubleshooting 38
8.2 Emergency action 39
9 Decommissioning and disassembly 39
9.1 Decommissioning 40
9.2 Removing the valve from the pipeline 40
9.3 Removing the actuator from the valve 40
9.4 Disposal 40
10 Appendix 42
10.1 Customer inquiries 42
10.2 Certificates 43
10.3 Spare parts 44

1 Safety instructions and safety measures

Intended use

The SAMSON Type 3251 Globe Valve in combination with an actuator (e.g. Type 3271 or Type 3277 Pneumatic Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases or vapors. The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in applications that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in other applications or conditions than specified, SAMSON must be contacted.

SAMSON does not assume any liability for damage resulting from the failure to use the valve for its intended purpose or for damage caused by external forces or any other external factors.

➔ Refer to the technical data and nameplate for limits and fields of application as well as possible uses.

Reasonably foreseeable misuse

The control valve is not suitable for the following applications:

– Use outside the limits defined during sizing and in the technical data
– Use outside the limits defined by the valve accessories mounted on the control valve

Furthermore, the following activities do not comply with the intended use:

– Use of non-original spare parts
– Performing service and repair work not described in these instructions

Qualifications of operating personnel

The control valve must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Personal protective equipment

We recommend wearing the following protective equipment depending on the process medium:

– Protective clothing, gloves and eyewear in applications with hot, cold and/or corrosive media
– Wear hearing protection when working near the valve.

➔ Check with the plant operator for details on further protective equipment.

Revisions and other modifications

Revisions, conversions or other modifications to the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the control valve may no longer meet the requirements for its intended use.

Safety devices

Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators (see actuator documentation).

Warning against residual hazards

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and maintenance.

Responsibilities of the operator

The operator is responsible for proper operation and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third persons are not exposed to any danger.

Responsibilities of operating personnel

Operating personnel must read and understand these mounting and operating instructions as well as the specified hazard statements, warning and caution notes. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

Referenced standards and regulations

The control valves comply with the requirements of the European Pressure Equipment Directive 97/23/EC. Valves with a CE marking have a declaration of conformity which includes information about the applied conformity assessment procedure. This declaration of conformity is included in the Appendix of these instructions (see section 10.2).

According to the ignition risk assessment performed in accordance with EN 13463-1:2009, section 5.2, the non-electrical control valves do not have their own potential ignition source even in the rare incident of an operating fault. As a result, they do not fall within the scope of Directive 94/9/EC.

➔ For connection to the equipotential bonding system, observe the requirements specified in section 6.3 of EN 60079-14:2014-10 (VDE 0165 Part 1).

1.1 Notes on possible severe personal injury

DANGER!

Risk of bursting in pressure equipment.

Control valves and pipelines are pressure equipment. Improper opening can lead to valve components bursting.

➔ Before starting any work on the control valve, depressurize all plant sections concerned and the valve.

➔ Drain the process medium from all the plant sections concerned as well as the valve.

➔ Wear personal protective equipment.

1.2 Notes on possible personal injury

WARNING!

Crush hazard arising from moving parts.

The control valve contains moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the valve.

➔ Do not insert hands or finger into the yoke while the valve is in operation.

➔ While working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.

Risk of personal injury due to residual process medium in the valve.

While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

➔ If possible, drain the process medium from all the plant sections concerned and the valve.

➔ Wear protective clothing, gloves and eyewear.

Risk of burn injuries due to hot or cold components and pipelines.

Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

➔ Allow components and pipelines to cool down or heat up.

➔ Wear protective clothing and gloves.

Risk of personal injury due to preloaded springs.

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic actuators can be identified by the long bolts protruding from the bottom of the actuator.

➔ Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).

1.3 Notes on possible property damage

NOTICE

Risk of valve damage due to contamination (e.g. solid particles) in the pipeline.

➔ Flush the pipelines before start-up.

Risk of valve damage due to unsuitable medium properties.

The valve is designed for a process medium with defined properties.

➔ Only use the process medium specified for sizing the valve.

Risk of leakage and valve damage due to excessively high or low tightening torques.

Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.

➔ Observe the specified tightening torques (▶ WA 0029).

Risk of valve damage due to the use of unsuitable tools.

Certain tools are require to work on the valve.

➔ Only use tools approved by SAMSON (▶ WA 0029).

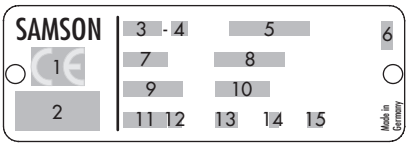
Risk of valve damage due to the use of unsuitable lubricants.

The lubricants to be used depend on the valve material. Unsuitable lubricants may corrode and damage the valve surface.

➔ Only use lubricants approved by SAMSON (▶ WA 0029).

2 Markings on the control valve

2.1 Valve nameplate



1 CE marking or "Art. 3, Abs. 3", where applicable
2 ID of the notified body, fluid group and category, where applicable
3 Type designation
4 Device modification index
5 Material
6 Year of manufacture
7 Valve size:
DIN: DN · ANSI: NPS · JIS: DN … A/B
8 Pressure rating:
DIN: PN · ANSI: CL · JIS: K
9 Order no. with modification index
10 Position in order
11 Flow coefficient:
DIN: K_{VS} · ANSI: C_V · JIS: C_V
12 Characteristic:
%: equal percentage · Lin: linear
NO/NC: on/off service
13 Seat/plug seal:
ME: metal (see section 3.3)
HA: carbide metal
ST: Stellite® facing
KE: ceramic
PT: soft seal with PTFE
PK: soft seal with PEEK
14 Pressure balancing:
DIN: D · ANSI: B · JIS: B
15 Flow divider:
1: St I · 3: St III

Fig. 1: *Valve nameplate*

The nameplate (80) is affixed to the yoke of the valve (see Fig. 2).

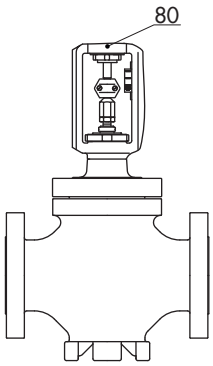


Fig. 2: *Location of the nameplate*

2.2 Actuator nameplate

See associated actuator documentation.

2.3 Material number

The seat and plug of the valves have an article number written on them. Specifying this article number, you can contact us to find out which material is used. Additionally, a seat code is used to identify the trim material. This seat code is specified on the nameplate (seat/plug seal, 13). For more details on the nameplate, see section 2.1.

Seat code	Material
01	1.4006
02	CrNiMo steel
03	1.4301
04	Stellite® 6B (CrNiMo steel with entire seat bore with Stellite facing)
05	Stellite® 6B (solid Stellite® seat)
10	1.4112
11	1.4306
12	1.4462
13	1.4539
14	1.7362 V
15	2.4360
16	2.4602
17	2.4605
18	2.4610
19	2.4617
20	2.4681
21	3.7035
22	3.7235

3 Design and principle of operation

The single-seated Type 3251 Globe Valve is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator (see Fig. 3). It can also be combined with other actuators.

The seat (4) and plug with plug stem (5) are assembled in the body (1). The plug stem is connected to the actuator stem (A7) by the stem connector (A26) and is sealed by a spring-loaded V-ring packing (15). The springs in the pneumatic actuator (A) are located either above or below the diaphragm (A4) depending on the selected fail-safe action (see section 3.1). A change in the signal pressure acting on the diaphragm causes the plug to move. The actuator size is determined by the diaphragm area.

The medium flows through the valve in the direction indicated by the arrow. A rise in signal pressure causes the force acting on the diaphragm in the actuator to increase. The springs are compressed. Depending on the selected direction of action, the actuator stem retracts or extends. As a result, the plug position in the seat changes and determines the flow rate through the valve.

3.1 Fail-safe positions

The fail-safe position depends on the actuator used.

Depending on how the compression springs are arranged in the pneumatic actuator, the valve has two different fail-safe positions:

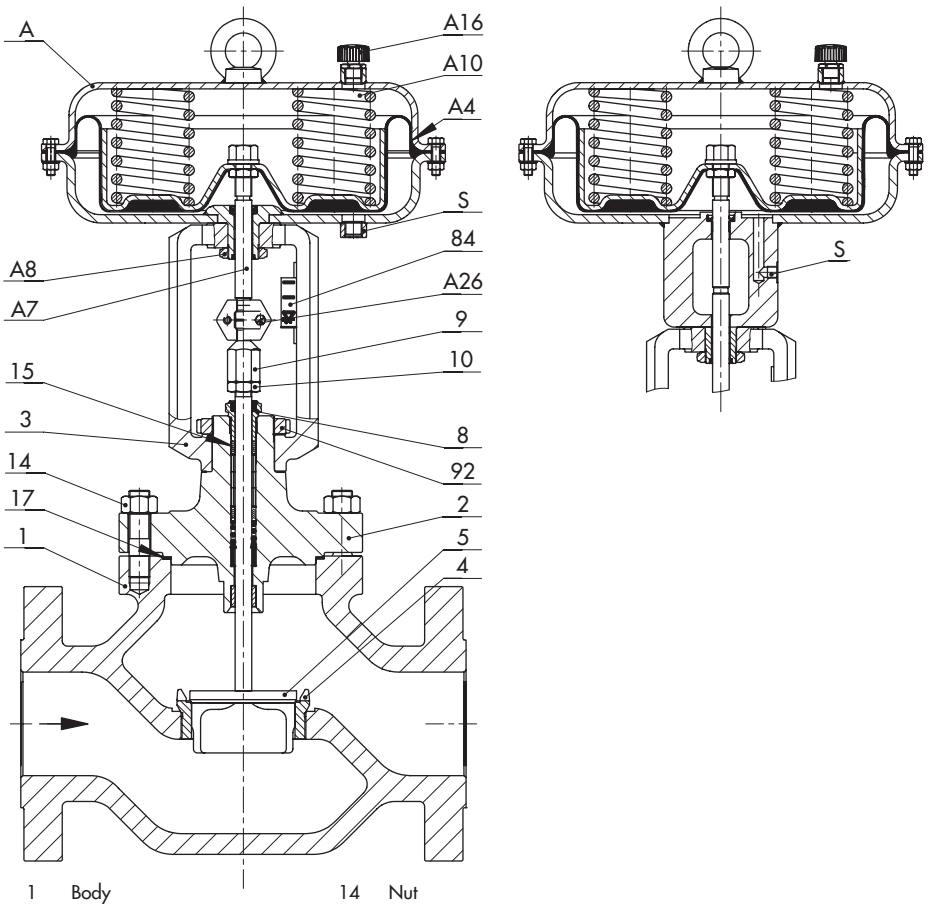
Actuator stem extends

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem downward and close the valve. The valve opens when the signal pressure is increased enough to overcome the force exerted by the springs.

Actuator stem retracts

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem upwards and open the valve. The valve closes when the signal pressure is increased enough to overcome the force exerted by the springs.

Tip:
The actuator's direction of action can be reversed, if required. Refer to the operating and mounting instructions of the pneumatic actuator, e.g.
▶ *EB 8310-X for Type 3271 and Type 3277*



1	Body	14	Nut	A7	Actuator stem
2	Bonnet	15	Packing	A8	Ring nut
3	Yoke	17	Gasket	A10	Spring
4	Seat	84	Travel indicator scale	A16	Vent plug
5	Plug (with plug stem)	92	Castellated nut	A26	Stem connector clamps
8	Threaded bushing			S	Signal pressure connection
9	Stem connector nut	A	Actuator		
10	Lock nut	A4	Diaphragm		

Fig. 3: *Type 3251 Valve with Type 3271 Pneumatic Actuator (left) and Type 3277 Pneumatic Actuator (right)*

3.2 Versions

The modular design allows an insulating section or metal bellows to be fitted to the standard valve version.

Actuators

In these instructions, the preferable combination with a Type 3271 or Type 3277 Pneumatic Actuator is described. The pneumatic actuator (with or without handwheel) can be replaced by another pneumatic actuator in a different size, but with the same travel.

➔ Observe the maximum permissible actuator force.

Note:
If the travel range of the actuator is larger than the travel range of the valve, the spring assembly in the actuator must be preloaded so that the travel ranges match. See associated actuator documentation.

The basic pneumatic actuator can be replaced by a pneumatic actuator with additional handwheel or by an electric actuator.

3.3 Technical data

The nameplates on the valve and actuator provide information on the control valve version. See section 2.1 and the associated actuator documentation.

Note:
More information is available in Data Sheet ▶ T 8051.

Compliance

The Type 3251 Valve bears both the CE and EAC marks of conformity.

CE EAC

Temperature range

Depending on the version, the control valve is designed for a temperature range from –10 to +220 °C. The use of an insulating section or bellows seal extends the temperature range from –196 to +550 °C.

Leakage class

Depending on the version, the following leakage class applies:

Seal (13 on nameplate)	ME, ST	ME, ST	PT, PK
Pressure balancing (14 on nameplate)	–	D/B	–
Leakage class (according to IEC 60534-4)	Min. IV	Min. IV	VI

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the valve version, plant facilities and process medium. On request, SAMSON can perform calculations according to IEC 60534, Part 8-3 or VDMA 24422 (edition 89).

WARNING!
Risk of hearing loss or deafness due to loud noise.
Wear hearing protection when working near the valve.

Dimensions and weights

Table 1 to Table 4 provide a summary of the dimensions and weights of the standard version of Type 3251 Valve. The lengths and heights in the dimensional drawings are shown on p. 18.

Dimensions in mm · Weights in kg

Table 1: *Dimensions of Type 3251 Valve, up to DN 150 · Face-to-face dimensions according to DIN EN 558*

Valve	DN	15	25	40	50	80	100	150
Length L (flanges and welding ends)	PN 10 to 40	130	160	200	230	310	350	480
	PN 63 to 160	210	230	260	300	380	430	550
	PN 250	230	260	300	350	450	520	700
	PN 320	230	260	300	350	450	520	700
	PN 400	264 [1]	308 [1]	378 [1]	444 [1]	570 [1]	666 [1]	908 [1]
Height H4	PN 10 to 40	152	152	164	217	222	242	314
	PN 63 to 160	152	152	164	217	222	242	314
	PN 250 to 400	186	186	195	251	288	348	443
H8 for actuator	350 cm²	240						–
	355 cm²							418
	700 cm²							418
	750 cm²							418
	1000 cm²	–			295			418
	1400-60 cm²							418
	1400-120 cm²				480			503
	2800 cm²							503
	2 x 2800 cm²							503
H2 (DN 100 and larger with foot)	PN 10 to 40	50	60	80	90	100	160	220
	PN 63 to 160	60	70	90	100	120	180	235
	PN 250	70	80	100	110	140	220	285
	PN 320	70	80	100	110	140	220	On request
	PN 400	75	90	110	120	160	237	320

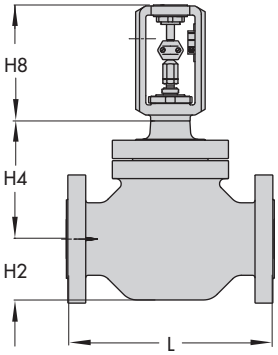
[1] Face-to-face dimensions acc. to SAMSON standard

Table 2: *Dimensions of Type 3251 Valve, DN 200 and larger*

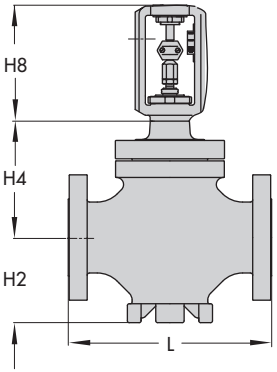
Valve	DN	200	250	300	400	500
Length L (flanges and welding ends)	PN 10 to 40	600	730	850	1100	1250
	PN 63 to 160	650	775	900	1150 [1]	–
	PN 250	–				
	PN 320					
	PN 400					
Height H4	PN 10 to 40	387	442	655	640	760
	PN 63 to 160	387	519	655	640 [1]	–
	PN 250 to 400	–				
H8 for actuator	700 cm²	418	418	–		
	750 cm²	418	418			
	1000 cm²	418	On request			
	1400-60 cm²	418				
	1400-120 cm²	503	503 [2]	650		
	2800 cm²	503	530 [2]			
	2 x 2800 cm²	503	530 [2]			
H2 (DN 100 and larger with foot)	PN 10 to 40	250	310	370	415	On request
	PN 63 to 160	270	300	390	On request [1]	–
	PN 250	–				
	PN 320					
	PN 400					

[1] PN 63
[2] H8 = 650 mm with 250 mm seat bore

Dimensional drawings



Type 3251
Up to DN 80 without foot



Type 3251
DN 100 and larger with foot

Table 3: *Weights for standard version of Type 3251 up to DN 150*

Valve	DN	15	25	40	50	80	100	150
Valve without actuator	PN 16 to 40	15.5	17.5	21.5	38	59	78	201
	PN 63 to 160	20	25	30.5	54	89	116	334
	PN 250	On request						
	PN 320							
	PN 400							

Table 4: *Weights for standard version of Type 3251 in DN 200 and larger*

Valve	DN	200	250	300	400	500
Valve without actuator	PN 16 to 40	427	858	920	1450	On request
	PN 63 to 160	642	1090	1480	2600 [1]	–
	PN 250	–				
	PN 320					
	PN 400					

[1] PN 63

Note:

Refer to the following data sheets for more dimensions and weights:

- *T 8051 for valves with bellows seal, insulating section or heating jacket*

The associated actuator documentation applies to actuators, e.g. for SAMSON pneumatic actuators:

- *T 8310-1 for Type 3271 and Type 3277 Actuators up to 750 cm² actuator area*
- *T 8310-2 for Type 3271 Actuator with 1000 cm² actuator area and larger as well as Type 3273 Actuator*
- *T 8310-3 for Type 3271 Actuator with 1400-60 cm² actuator area*

4 Preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received against the delivery note.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.1 Unpacking

Note:
Do not remove the packaging until immediately before installing the valve into the pipeline.

Proceed as follows to lift and install the valve:

1. Remove the packaging from the valve.
2. Dispose of the packaging in accordance with the valid regulations.

NOTICE
Risk of valve damage due to foreign particles entering the valve.
The protective caps fitted on the valve's inlet and outlet prevent foreign particles from entering the valve and damaging it.
Do not remove the protective caps until immediately before installing the valve into the pipeline.

4.2 Transporting and lifting

DANGER!
Hazard due to suspended loads falling.
Stay clear of suspended or moving loads.

WARNING!
Risk of lifting equipment tipping and risk of damage to lifting accessories due to exceeding the rated lifting capacity.
– *Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the valve (including actuator, if applicable).*
– *Refer to section 3.3 or Data Sheet ▶ T 8051 for weights.*

WARNING!
Risk of personal injury due to control valve tipping.
– *Observe the valve's center of gravity.*
– *Secure the valve against tipping over or turning.*

NOTICE
Risk of valve damage due to incorrectly attached slings.
The lifting eyelet on the actuator is only intended for mounting and removing the actuator as well as lifting the actuator without valve. Do not use this lifting eyelet to lift the entire control valve assembly.
- *When lifting the control valve, make sure that the slings attached to the valve body bear the entire load.*
- *Do not attach load-bearing slings to the actuator, handwheel or any other parts.*
- *Observe lifting instructions (see section 4.2.2).*

Tip:
SAMSON's After-sales Service department can provide more detailed transport and lifting instructions on request.

4.2.1 Transporting

The control valve can be transported using lifting equipment (e.g. crane or forklift).

➔ Leave the control valve in its transport container or on the pallet to transport it.

➔ Observe the transport instructions.

Transport instructions

- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Remove any damage immediately.
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature of standard control valves is –20 to +65 °C.

Note:
Contact SAMSON's After-sales Service department for the transportation temperatures of other valve versions.

4.2.2 Lifting

To install a large valve into the pipeline, use lifting equipment (e.g. crane or forklift) to lift it.

Lifting instructions

- Secure slings against slipping.
- Make sure the slings can be removed from the valve once it has been installed into the pipeline.

- Prevent the control valve from tilting or tipping.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.
- Make sure that the additional sling between the lifting eyelet and rigging equipment (hook, shackle etc.) does not bear any load when lifting valves larger than DN 150. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

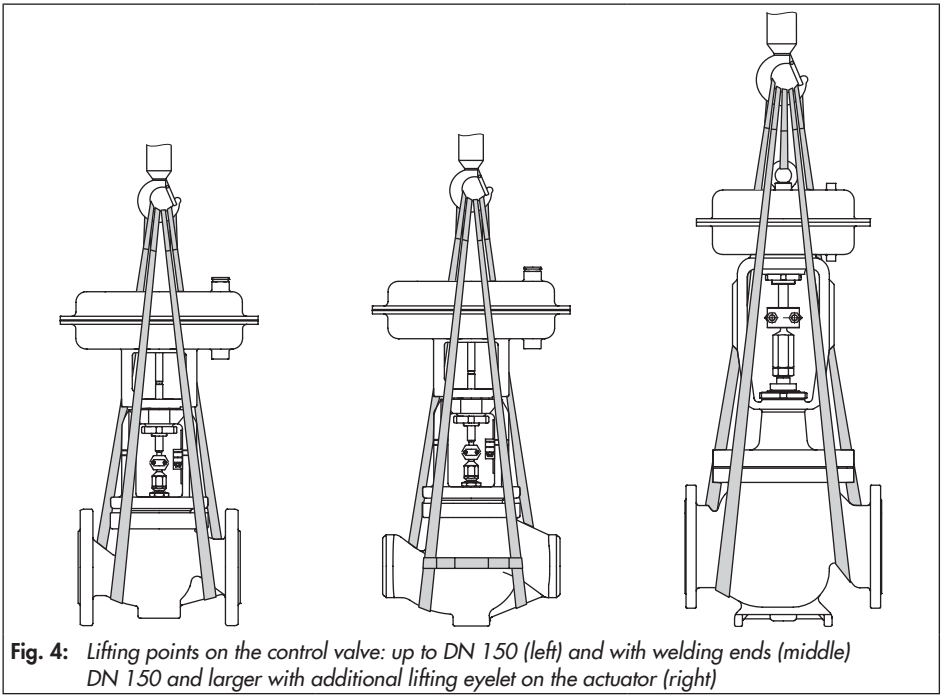


Fig. 4: *Lifting points on the control valve: up to DN 150 (left) and with welding ends (middle) DN 150 and larger with additional lifting eyelet on the actuator (right)*

Version with flanges

1. Attach one sling to each flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4).
2. **DN 150 and larger:** Attach another sling to the lifting eyelet on the actuator and to the rigging equipment.
3. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
4. Move the control valve at an even pace to the site of installation.
5. Install the valve into the pipeline (see section 5.2).
6. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
7. Remove slings.

Version with welding ends

1. Attach one sling to each welding end of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4).
2. Secure the slings attached to the body against slipping using a connector.
3. **DN 150 and larger:** Attach another sling to the lifting eyelet on the actuator and to the rigging equipment.
4. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
5. Move the control valve at an even pace to the site of installation.
6. Install the valve into the pipeline (see section 5.2).
7. After installation in the pipeline, check whether the weld seams hold.
8. Remove slings.

Tip:
We recommend using a hook with safety latch (see Fig. 4). The safety latch prevents the slings from slipping during lifting and transporting.

4.3 Storage

NOTICE
Risk of valve damage due to improper storage.
– Observe storage instructions.
– Avoid long storage times.
– Contact SAMSON in case of different storage conditions or longer storage times.

Note:
We recommend regularly checking the control valve and the prevailing storage conditions during long storage times.

Storage instructions

– Valves in DN 100 and smaller can be stored horizontally.

  Store valves larger than DN 150 in the upright position with the actuator on top to avoid damage to the seals (packing chamber and pressure balancing).

– If valves in DN 50 or larger are stored in one place for longer than six months, store them in the upright position with the actuator on top.

– Protect the control valve against external influences (e.g. impact).

– Do not damage the corrosion protection (paint, surface coatings). Remove any damage immediately.

– Protect the control valve against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.

– Make sure that the ambient air is free of acids or other corrosive media.

– The permissible storage temperature of standard control valves is –20 to +65 °C.

Note:
Contact SAMSON's After-sales Service department for the storage temperatures of other valve versions.

– Do not place any objects on the control valve.

– Pack the control valve in airtight packaging.

Special storage instructions for soft parts

Soft parts, e.g. actuator diaphragm

– To protect soft parts against UV light and ozone, pack them in black plastic bags. We recommend using polyethylene packaging with a minimum thickness of 0.075 mm. Do not use PVC.

– To keep soft parts in shape and to prevent cracking, do not bend them or hang them up.

– We recommend a storage temperature of 15 °C for soft parts.

– Store soft parts away from lubricants, chemicals, solutions and fuels.

Tip:
SAMSON's After-sales Service department can provide more detailed storage instructions on request.

4.4 Preparation for installation

Proceed as follows:

- ➔ Flush the pipelines.
- ➔ Check the valve to make sure it is clean.
- ➔ Check the valve for damage.
- ➔ Check to make sure that the type designation, nominal size, material, pressure rating and temperature range of the valve match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).
- ➔ For steam applications, make sure that the pipelines are dry. Moisture will damage the inside of the valve.
- ➔ Check the pressure gauge to make sure it functions.
- ➔ When the valve and actuator are already assembled, check the tightening torques of the bolted joints (▶ WA 0029). Components may loosen during transport.

5 Mounting and start-up

SAMSON valves are delivered ready for use. In special cases, the valve and actuator are delivered separately and must be assembled on site. The procedure to mount and start up the valve are described in the following.

NOTICE
Risk of valve damage due to excessively high or low tightening torques. Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage. Observe the specified tightening torques (▶ WA 0029).

NOTICE
Risk of valve damage due to the use of unsuitable tools.
Only use tools approved by SAMSON (▶ WA 0029).

5.1 Mounting the actuator onto the valve

Proceed as described in the actuator documentation if the valve and actuator have not been assembled by SAMSON:

Note:
- *Remove the mounted actuator before mounting the other actuator (see associated actuator documentation).*
- *Preloading the actuator springs increases the thrust of a pneumatic actuator and reduces the travel range of the actuator (see associated actuator documentation).*
- *DN 100 and larger: in versions with V-port plug, the large V-shaped port of the V-port plug must face towards the valve outlet on mounting the actuator.*

5.2 Installing the valve into the pipeline

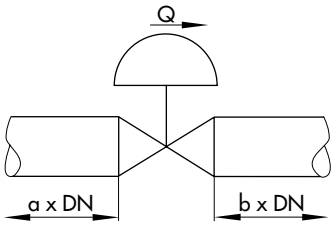
5.2.1 Checking the installation conditions

Pipeline routing

The inlet and outlet lengths vary depending on the process medium. To ensure the control valve functions properly, follow the installation instructions given below:

- ➔ Observe the inlet and outlet lengths (see Table 5). Contact SAMSON if the valve conditions or states of the medium process deviate.
- ➔ Install the valve free of stress and with the least amount of vibrations as possible. If necessary, attach supports to the valve.
- ➔ Install the valve allowing sufficient space to remove the actuator and valve or to perform service and repair work on them.

Table 5: *Inlet and outlet lengths*



Q Flow rate
a Inlet length
b Outlet length

State of process medium	Valve conditions	Inlet length a	Outlet length b
Gas	Ma ≤ 0.3	2	4
	0.3 ≤ Ma ≤ 0.7	2	10
Vapor	Ma ≤ 0.3 [1]	2	4
	0.3 ≤ Ma ≤ 0.7 [1]	2	10
	Saturated steam (percentage of condensate > 5 %)	2	20
Liquid	Free of cavitation/w < 10 m/s	2	4
	Cavitation producing noise/w ≤ 3 m/s	2	4
	Cavitation producing noise/3 < w < 5 m/s	2	10
	Critical cavitation/w ≤ 3 m/s	2	10
	Critical cavitation/3 < w < 5 m/s	2	20
Flashing	–	2	20
Multi-phase	–	10	20

[1] No saturated steam

Mounting position

We recommend installing the valve upright with the actuator on top.

Valves, which are not installed in the pipeline in the upright position with the actuator on top, must be supported or suspended. The deadweight of the control valve may lead to premature wear or leakage if it is not supported or suspended.

In the following versions, the valve **must** be installed in the upright position with the actuator on top.

– Valves in DN 100 and larger
– Valves with insulating section for low temperatures below –10 °C

➔ Contact SAMSON if the mounting position is not as specified here.

Vent plugs

Vent plugs are screwed into the exhaust air ports of pneumatic, electropneumatic and electric devices. They ensure that any exhaust air that forms can be vented to the atmosphere (to avoid excess pressure in the device). Furthermore, the vent plugs allow air intake to prevent a vacuum from forming in the device.

➔ Locate the vent plug on the opposite side to the workplace of operating personnel.

➔ On mounting valve accessories, make sure that they can be operated from the workplace of the operating personnel.

Note:
The workplace of operating personnel is the location from which the valve, actuator and any mounted valve accessories can be accessed to operate them.

5.2.2 Additional fittings

Strainer

We recommend installing a SAMSON Type 2 Strainer upstream of the valve. It prevents solid particles in the process medium from damaging the valve.

Bypass and shut-off valves

We recommend installing a shut-off valve both upstream of the strainer and downstream of the valve and setting up a bypass line. The bypass line ensures that the plant does not need to be shut down for service and repair work on the valve.

Insulation

Only insulate control valves with insulating section or bellows seal up to the bonnet flange of the valve body for medium temperatures below 0 °C or above 220 °C.

Do not insulate valves mounted to comply with NACE MR 0175 requirements.

Test connection

Versions with bellows seal fitted with a test connection (G ⅛) at the top flange allow the tightness of the bellows to be monitored.

Particularly for liquids and vapors, we recommend installing a suitable leakage indicator (e.g. a contact pressure gauge, an outlet to an open vessel or an inspection glass).

WARNING!
Risk of personal injury due to components under pressure and process medium escaping under pressure.
Do not loosen the screw of the test connection while the valve is in operation.

Safety guard

To reduce the crush hazard arising from moving parts (actuator and plug stem), a safety guard can be installed.

Noise emission

Trims with flow dividers can be used to reduce noise emission (see ▶ T 8081).

5.2.3 Installing the control valve

Version with flanges

1. Close the shut-off valve in the pipeline while the valve is being installed.
2. Remove the protective caps from the valve ports before installing the valve.
3. Lift the valve using suitable lifting equipment to the site of installation (see section 4.2.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
4. Make sure that the correct flange gaskets are used.
5. Bolt the pipe to the valve free of stress.
6. Depending on the field of application, allow the valve to cool down or heat up to reach ambient temperature before start up.
7. Slowly open the shut-off valve in the pipeline after the valve has been installed.

NOTICE
Risk of valve damage due to a sudden pressure increase and resulting high flow velocities.
Slowly open the shut-off valve in the pipeline during start-up.

8. Check the valve to ensure it functions properly and that there is no leakage.

Version with welding ends

1. Proceed as described for Version with flanges (steps 1 to 3).
2. Completely retract the actuator stem to protect the plug from sparks during welding.
3. Weld the valve free of stress into the pipeline.
4. Proceed as described for Version with flanges (steps 6 to 8).

5.2.4 Quick check

SAMSON valves are delivered ready for use. To test the valve's ability to function, the following quick checks can be performed:

Packing

For versions with adjustable packing (Form H), check whether the packing is correctly tightened to prevent process medium escaping during start-up.

Tip:
A label on the bonnet (2) or yoke (3) indicates whether an adjustable packing is installed.

➔ Slightly turn the packing nut clockwise with a suitable tool to tighten the packing.

Travel motion

The movement of the actuator stem must be linear and smooth.

➔ Open and close the valve, observing the movement of the actuator stem.

➔ Apply the maximum and minimum control signals to check the end positions of the valve.

➔ Check the travel reading at the travel indicator scale.

Fail-safe position

➔ Shut off the signal pressure line.

➔ Check whether the valve moves to the fail-safe position.

6 Operation

Immediately after completing mounting and start-up (see section 5), the valve is ready for use.

WARNING!
Crush hazard arising from moving parts (actuator and plug stem).
Do not insert hands or finger into the yoke while the valve is in operation.

NOTICE
Operating disturbed by a blocked actuator and plug stem.
Do not impede the movement of the actuator or plug stem by inserting objects into their path.

6.1 Working in manual mode

Valves fitted with actuators with a handwheel can be manually closed or opened in case of supply air failure.

➔ For normal closed-loop operation, move the handwheel to the neutral position.

7 Maintenance

The control valve is subject to normal wear, especially at the seat, plug and packing. Depending on the operating conditions, check the valve at regular intervals to prevent possible failure before it can occur.

Tip:
SAMSON's After-sales Service department can support you to draw up a maintenance plan for your plant.

External leakage can indicate that the packing is defective or the metal bellows is defective (in a version with a bellows seal).

If the valve does not close tightly, tight shut-off may be impaired by dirt stuck between the seat and plug or by damaged facings.

We recommend removing the valve from the pipeline or service or repair work (see section 9.2). Remove the affected parts as described, carefully clean them and renew them, if necessary.

DANGER!
Risk of bursting in pressure equipment.
Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.
– Before starting any work on the control valve, depressurize all plant sections concerned and the valve.
– Drain the process medium from all the plant sections concerned as well as the valve.
– Wear personal protective equipment.

WARNING!
Risk of personal injury due to residual process medium in the valve.
While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.
Wear protective clothing, gloves and eyewear.

WARNING!
Risk of burn injuries due to hot or cold components and pipeline.
Valve components and the pipeline may become very hot or cold. Risk of burn injuries.
– Allow components and pipelines to cool down or heat up.
– Wear protective clothing and gloves.

NOTICE
Risk of valve damage due to excessively high or low tightening torques.
Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage. Observe the specified tightening torques (▶ WA 0029).

NOTICE
Risk of valve damage due to the use of unsuitable tools.
Only use tools approved by SAMSON (▶ WA 0029).

NOTICE
Risk of valve damage due to incorrect maintenance or repair.
– Service and repair work must only be performed by trained staff.
– Contact SAMSON's After-sales Service department for service and repair work.

7.1 Replacing the packing

7.1.1 Standard valve versions

1. Remove actuator. See associated actuator documentation.
2. Remove body nuts (14).
3. Lift the valve bonnet (2) and plug with plug stem (5) off the body (1).
4. Unthread the stem connector nut (9) and lock nut (10) from the plug stem.
5. Unscrew the threaded bushing (8).
6. Pull the plug with plug stem (5) out of the valve bonnet (2).
7. Pull all the packing parts out of the packing chamber using a suitable tool.
8. Renew damaged parts. Clean the packing chamber thoroughly.
9. Remove the gasket (17) and carefully clean sealing faces in the valve body (1) and on the bonnet (2).
10. Apply a suitable lubricant to all the packing parts and to the plug stem (5).

NOTICE
Do not use lubricant on graphite packings.

11. Slide the plug with plug stem (5) into the valve body (1).
12. Insert the new gasket (17) into the body.
13. Carefully place the valve bonnet (2) over the plug stem onto the valve body (1). Fasten with nuts (14).
14. Carefully slide the packing parts over the plug stem into the packing chamber. Make sure you observe the proper order (see Fig. 5).

Note:
The number of spacers (18, 19) varies depending on the nominal valve size.

15. Screw in the threaded bushing (8) and tighten it.
16. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.
17. Mount actuator. See associated actuator documentation.
18. Adjust lower or upper signal bench range. See associated actuator documentation.

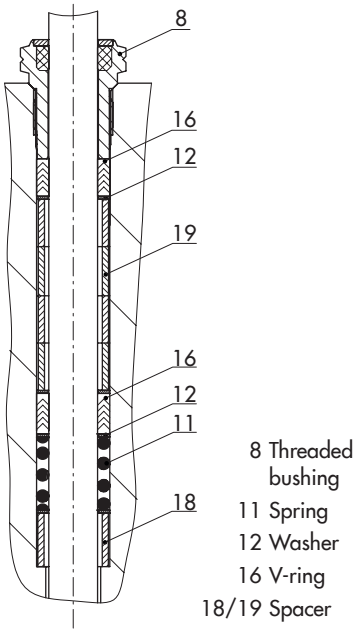


Fig. 5: *Packing in standard valve versions*

7.1.2 Valves with insulating section or bellows seal

To replace the packing, proceed as described for the standard version in section 7.1.1. However:

➔ Unscrew the threaded bushing (8).

➔ Remove the nuts (33). Separate the bellows bonnet (101) from the bellows seal (22).

➔ Replace the gasket (39).

7.2 Replacing the seat

When exchanging the seat, we recommend also checking the plug and packing and to replace them as well, if necessary.

7.2.1 Standard valve versions

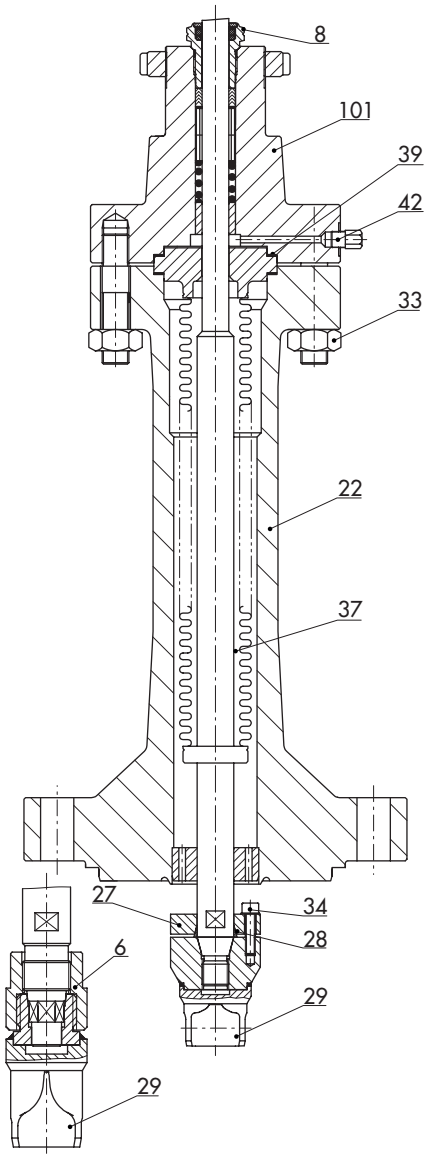
1. To replace the seat, proceed as described in section 7.1.1, items 1 to 7.
2. Unscrew the seat (4) using a suitable seat wrench (▶ WA 0029).
3. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
4. Screw in the seat.

7.2.2 Valves with insulating section or bellows seal

1. To replace the seat, proceed as described in section 7.1.1, items 1 to 7 and section 7.1.2.
2. Unscrew the seat (4) using a suitable seat wrench (▶ WA 0029).
3. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
4. Screw in the seat.

7.3 Replacing the plug

When exchanging the plug, we recommend also checking the seat and packing and to replace them as well, if necessary.



6	Bellows nut
8	Threaded bushing
22	Bellows seal
27	Flange
28	Clamping ring
29	Plug for version with bellows seal
33	Nut
34	Screw
37	Plug stem with bellows
39	Gasket
42	Test connection
101	Bellows bonnet

Fig. 6: *Valves with bellows seal, DN 50 to 150*

7.3.1 Standard valve versions

➔ To replace the plug, proceed as described in section 7.1.1. Replace the old plug with a new plug.

7.3.2 Valves with insulating section or bellows seal

The plug stem can only be replaced as a unit together with the metal bellows. The plug can, however, be detached from the plug stem. The plug of valves in DN 15 to 40 is screwed onto the stem. The plug of valves in DN 50 and larger is attached to the stem using a clamping ring (28).

! ***NOTICE***

To prevent damage in the valve with bellows seal, make sure that no torque is transferred to the metal bellows, which is welded onto the plug stem. We recommend using a clamping tool (▶ WA 0029).

A valve with insulating section does not contain a bellows.

Proceed for valves in DN 15 to 40

1. To replace the plug, proceed as described in section 7.1.1. Replace the old plug with a new plug.
2. Screw nut (6) onto the plug stem by hand as far as it will go.
3. Place the plug on the hexagonal neck of the plug stem.
4. Place an open-end wrench on the flattened area of the plug stem and screw the nut (6) onto the plug with a tightening torque of 40 Nm.

7.4 Replacing the metal bellows (valves with bellows seal only)

The metal bellows can only be replaced as a unit together with the plug stem (37).

➔ To replace the metal bellows, proceed as described in section 7.3.2.

7.5 Preparation for return shipment

Defective valves can be returned to SAMSON for repair.

Proceed as follows to return valves to SAMSON:

1. Put the control valve out of operation (see section 9).
2. Decontaminate the valve. Remove any residual process medium.
3. Fill in the Declaration on Contamination, which can be downloaded from our website at ▶ www.samson.de > Services > Check lists for after sales service > Declaration on Contamination.
4. Send the valve together with the filled-in form to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at ▶ www.samson.de > Worldwide.

7.6 Ordering spare parts and operating supplies

Contact your nearest SAMSON subsidiary or the SAMSON After-sales Service department for information on spare parts, lubricants and tools.

Spare parts

See section 10.3 for details on spare parts.

Lubricant

Details on suitable lubricants can be found in the document ▶ WA 0029.

Tools

Details on suitable tools can be found in the document ▶ WA 0029.

8 Malfunctions

Depending on the operating conditions, check the valve at certain intervals to prevent possible failure before it can occur. Operators are responsible for drawing up a test plan.

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Actuator or plug stem does not move on demand.	Actuator is blocked.	Check attachment. Unblock the actuator.
	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
Actuator or plug stem does not move through the whole range.	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
The valve leaks to the atmosphere (fugitive emissions).	The packing is defective.	Replace packing (see section 7.1) or contact SAMSON's After-sales Service department.
	Version with bellows seal: the metal bellows seal is defective.	Replace metal bellows (see section 7.4) or contact SAMSON's After-sales Service department.
	Flange joint loose or gasket worn out.	Check the flange joint. Replace the gasket at the flange joint.
Increased flow through closed valve (seat leakage)	Dirt or other foreign particles deposited between the seat and plug.	Shut off the section of the pipeline and flush the valve.
	Valve trim, particularly with soft seat, is worn.	Replace seat and/or plug (see section 7.2 or section 7.3) or contact SAMSON's After-sales Service department.

Note:
Contact SAMSON's After-sales Service department for malfunctions not listed in the table.

8.2 Emergency action

Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1).

Operators are responsible for emergency action to be taken in the plant.

In the event of a valve malfunction:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Check the valve for damage. If necessary, contact SAMSON's After-sales Service department.

Putting the valve back into operation after a malfunction

➔ Slowly open the shut-off valves. Allow the process medium to flow into the valve slowly.

9 Decommissioning and disassembly

DANGER!
Risk of bursting in pressure equipment.
Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.
– Before starting any work on the control valve, depressurize all plant sections concerned and the valve.
– Drain the process medium from all the plant sections concerned as well as the valve.
– Wear personal protective equipment.

WARNING!
Risk of personal injury due to residual process medium in the valve.
While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.
Wear protective clothing, gloves and eyewear.

WARNING!
Risk of burn injuries due to hot or cold components and pipeline.
Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

– *Allow components and pipelines to cool down or heat up.*
– *Wear protective clothing and gloves.*

9.1 Decommissioning

To decommission the control valve for service and repair work or disassembly, proceed as follows:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Completely drain the pipelines and valve.
3. Disconnect and lock the pneumatic air supply to depressurize the actuator.
4. If necessary, allow the pipeline and valve components to cool down or heat up.

9.2 Removing the valve from the pipeline

Version with flanges

1. Put the control valve out of operation (see section 9.1).
2. Unbolt the flange joint.
3. Remove the valve from the pipeline (see section 4.2).

Version with welding ends

1. Put the control valve out of operation (see section 9.1).
2. Cut the pipeline in front of the weld seam.
3. Remove the valve from the pipeline (see section 4.2).

9.3 Removing the actuator from the valve

See associated actuator documentation.

9.4 Disposal

➔ Observe local, national and international refuse regulations.

➔ Do not dispose of components, lubricants and hazard substances together with your other household waste.

10 Appendix

10.1 Customer inquiries

Contact SAMSON's After-sales Service department for support concerning maintenance or repair work or when malfunctions or defects arise.

E-mail

You can reach the After-sales Service department at aftersalesservice@samson.de.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on the SAMSON website, in all SAMSON product catalogs or on the back of these Mounting and Operating Instructions.

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size and valve version
- Pressure and temperature of the process medium
- Flow rate in m^3/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

10.2 Certificates

Konformitätserklärung/Declaration of Conformity
Modul/Module H
N° CE-PED-H-SAM 001-13-DEU

Für folgende Produkte/For the following pressure equipment:

Geräte/Devices	Bauart/Series	Typ/Type	Ausführung/Version
Durchgangsventil/Globe Valve	240	3241	DIN, Gehäuse GG/Cast iron-Body ab/from DN150, Gehäuse GGG/Sph. gr. iron-Body ab/from DN100, Fluide/Fluids [1]
			DIN/ANSI, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
Dreiwegeventil/Three-way Valve	240	3244	DIN, Gehäuse GG ab DN150/Cast iron-Body from DN150; Gehäuse GGG ab DN100/Sph. gr. iron-Body from DN100, Fluide/Fluids [1]
			DIN/ANSI, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
Tieftemperaturventil/Cryogenic Valve	240	3248	DIN/ANSI, alle Fluide/all Fluids
Durchgangsventil/Globe Valve	250	3251	DIN/ANSI, alle Fluide/all Fluids
Dreiwegeventil/Three-way Valve	250	3253	DIN/ANSI, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
Durchgangsventil/Globe Valve	250	3254	DIN/ANSI, alle Fluide/all Fluids
Eckventil/Angle Valve	250	3256	DIN/ANSI, alle Fluide/all Fluids
Split-Body-Ventil/Split-Body-Valve	250	3258	DIN, alle Fluide/all Fluids
IG-Eckventil/IG-Angle Valve	250	3259	DIN, alle Fluide/all Fluids
Dampfumformventil/ Steam-converting Valve	280	3281	DIN/ANSI, alle Fluide/all Fluids
		3284	DIN/ANSI, alle Fluide/all Fluids
		3286	DIN/ANSI, alle Fluide/all Fluids
		3288	DIN, alle Fluide/all Fluids
Durchgangsventile/Globe Valve	V2001	3321	DIN, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
			ANSI, alle Fluide/all Fluids
Dreiwegeventil/Three-way Valve	V2001	3323	DIN, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
			ANSI, alle Fluide/all Fluids
Schrägsitzventil/Bevel-Valve	---	3353	DIN, Geh. Stahl/Body Steel, alle Fluide/all Fluids
Drosselschalldämpfer/Silencer	3381	3381-1	DIN/ANSI, alle Fluide/all Fluids; Einzeldrosselscheibe mit Anschweißende/Single attenuation plate with welding end
		3381-3	DIN/ANSI, alle Fluide/all Fluids
		3381-4	DIN/ANSI, alle Fluide/all Fluids; Einzeldrosselscheibe mehrstufig mit Anschweißende/Single attenuation plate multi-stage with welding end
Durchgangsventil/Globe Valve	240	3241	ANSI, Gehäuse GG Cl125 ab 5"/Cast iron-Body Cl125 from 5" Fluide/Fluids [1]
Tieftemperaturventil mit Zirkulationssperre/ Cryogenic Valve with Circulation Barrier	240	3246	DIN/ANSI, alle Fluide/all Fluids
Dreiwegeventil/Three-way Valve	250	3253	DIN, Gehäuse GG ab DN200 PN16/Cast iron-Body from DN200 PN16 Fluide/Fluids [1]
Durchgangsventil/Globe Valve	290	3291	ANSI, alle Fluide/all Fluids
Eckventil/Angle Valve	290	3296	ANSI, alle Fluide/all Fluids
Durchgangsventil/Globe Valve	590	3591	ANSI, alle Fluide/all Fluids
Eckventil/Angle Valve	590	3596	ANSI, alle Fluide/all Fluids

[1] Gase nach Artikel 3/Punkt 1.3a zweiter Gedankenstrich//Gases acc. to article 3/chapter 1.3a second line
Flüssigkeiten nach Artikel 3/Punkt 1.3b//Liquids acc. to article 3/chapter 1.3b

wird die Konformität mit nachfolgender Anforderung bestätigt/We declare conformity with the demands of the:

Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über Druckgeräte/Pressure Equipment Directive	**97/23/EG 97/23/EC**	**vom/of 29.05.1997**
Angewandtes Konformitätsbewertungsverfahren/ Applied Conformity Assessment Procedure **für Fluide nach Artikel 3 Absatz 1/for fluids acc. to art. 3 para. 1**	**Modul H/Module H**	**durch/by Bureau Veritas 0062**

Das Qualitätssicherungssystem des Herstellers wird von folgender benannten Stelle überwacht/The Manufacturer's Quality Assurance System is monitored by following Notified Body:

Bureau Veritas S. A. nr 0062 67/71, boulevard du Château, 92200 Neuilly-sur-Seine, France

Angewandte technische Spezifikation/Technical Standards used: DIN EN12516-2; DIN EN12516-3; ASME B16.34.

Hersteller/Manufacturer:

SAMSON AG
Weismüllerstraße 3
60314 Frankfurt

Frankfurt, 01.12.2014

ppa.

Eugen Nebel
Zentralabteilungsleiter / Head of Central Department
Entwicklung Stellgeräte / Control Valve Development

i.V.

Stephan Michalik
Zentralabteilungsleiter / Head of Central Department
Qualitätsmanagment / Quality Management

ce_modul_h_de_en_rev00.docx

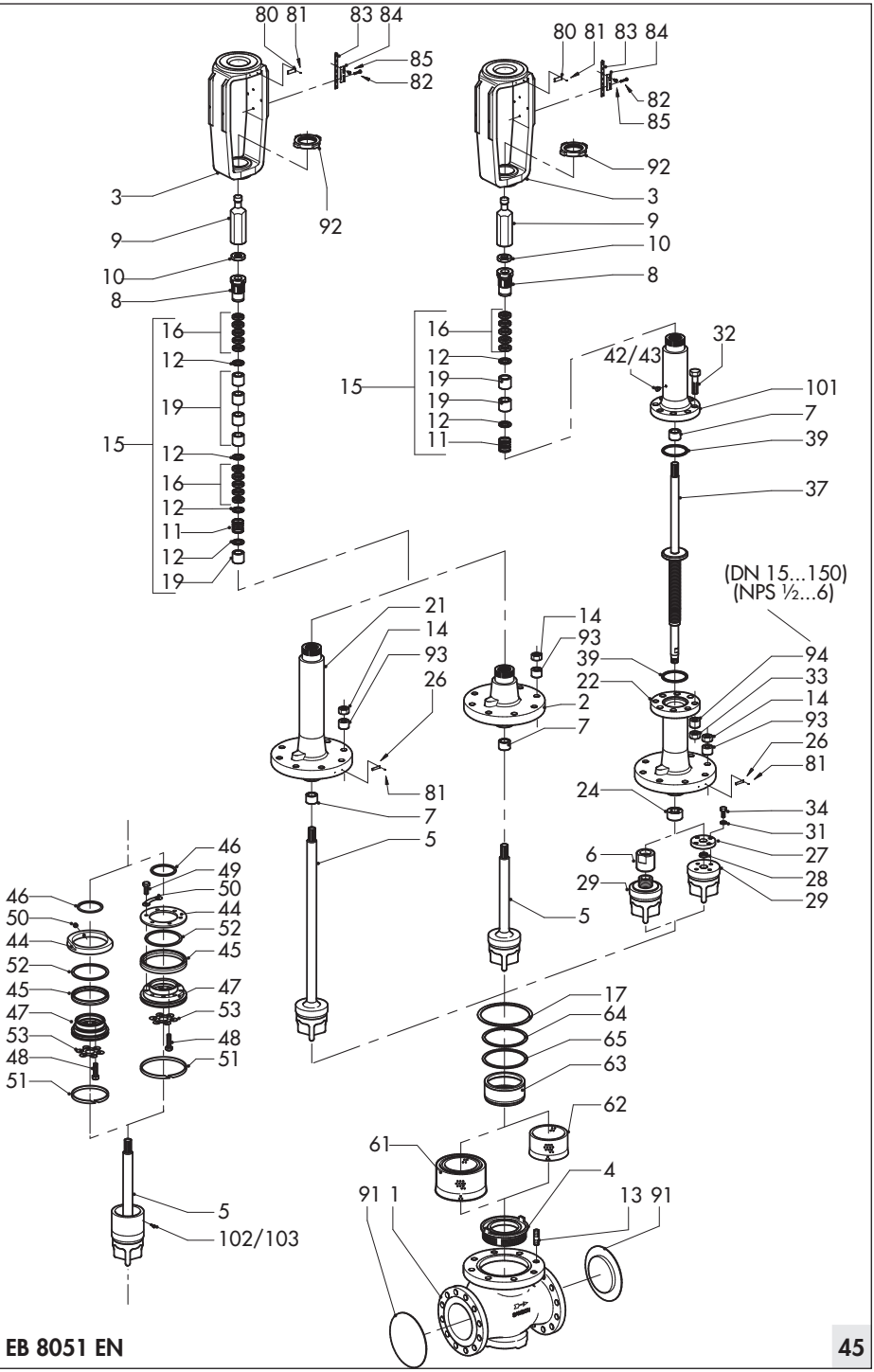
SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main
Telefon: +49 69 4009-0 · Telefax: +49 69 4009-1507
Internet: http://www.samson.de

Revision 00

10.3 Spare parts

Legend	
1	Body
2	Bonnet/flange
3	Yoke
4	Seat
5	Plug
6	Bellows nut
7	Guide bushing
8	Threaded bushing
9	Stem connector nut
10	Lock nut
11	Spring
12	Washer
13	Stud bolt
14	Nut
15	Packing (adjustable)
16	Packing
17	Gasket
19	Bushing
21	Insulating section
22	Bellows seal
24	Guide bushing
26	Label (bellows seal or insulating section)
27/28 31/34	Fastening parts
29	Plug for version with bellows seal
30	Washers
32	Bolt
33	Nut
37	Plug stem with bellows
39	Gasket
42/43	Screw plug with seal
44	Ring/ring nut [1]
45	Packing ring [1]
46	Gasket [1]
47	Support [1]
48	Hexagon screw [1]
49	Hexagon screw [1]
50	Lock [1]
51	Guide [1] (several guides only for version with graphite seal)
52	Ring [1] (only for version with graphite seal)
53	Snap ring [1]
61	Flow divider II [2]
62	Flow divider I or III [2]
63	Ring [2]
64	Gasket [2]
65	Gasket [2]
80	Nameplate
81	Grooved pin
82	Screw
83	Hanger
84	Travel indicator scale
85	Screw
91	Protective caps
92	Nut
93	Expansion sleeve
94	Expansion sleeve
101	Bellows bonnet
102/103	Screw with snap ring [1] (only for version with bellows seal)

[1] Version with balanced valve plug
[2] Version with flow divider


80 81 83 84
85
82
3
92
9
10
8
16
12
19
15
12
16
12
11
12
19
80 81 83 84
82
85
92
3
9
10
8
16
12
19
19
12
11
15
32
42/43
101
7
39
37
(DN 15...150)
(NPS ½...6)
21
14
93
26
81
7
5
14
93
39
22
2
7
94
33
14
93
26
81
24
34
31
27
28
29
6
29
5
17
64
65
63
62
61
4
91 1
13 91
46
49
50
44
52
45
47
53
48
51
46
50
44
52
45
47
53
48
51
5
102/103

SAMSON AG · MESS- UND REGELTECHNIK
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
samson@samson.de · www.samson.de

EB 8051 EN

2015-07-08 · English